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ABSTRACT

This study attempts to assess the developmental psycholinguistics hypothesis that language acquisition strategies are universal. Four types of statements were focused upon: (1) true affirmative statements (e.g., "You are a child"), (2) false affirmative statements ("You are a baby"), (3) false negative statements ("You aren't a child"), and (4) true negative statements ("You aren't a baby"). It was predicted that these types of statements would be acquired in the foregoing order. Eighteen English-speaking and 18 Japanese-speaking children (3 and 4 years of age) were asked to verify (by saying "right" or "wrong") 14 statements from each of the four types. Based on error rates, the English-speaking children seemed to fit the predicted pattern but the Japanese-speaking children made fewer errors with true negative statements than with false negative statements. These results are taken to imply strongly that language acquisition strategies are not always universal. An alternative model to explain the Japanese data is proposed in which Japanese speakers represent negations differently from English speakers. Two theories are suggested to account for this difference. (Author/BH)

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Language Acquisition Strategies may not be Universal --Statement Verification in English and Japanese

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A number of researchers in developmental psycholinguistics seem to have emphasized the universal aspects of language acquisition (cf. Slobin 1973). Some researchers have pointed to a remarkable similarity of semantic relations expressed in different languages by young children. At around age two, children all over the world start talking about changes in objects (e.g., dissapearance, recurrence), relationships between two entities (e.g., actor-object, object-locative), and relationships between entity and action (e.g., agent-action, action-object). Furthermore, based on language acquisition literature from many languages, Slobin (1973) attempted to formulate universal principles with which children acquire grammatical rules. For instance, Slobin proposed a universal principle of "pay attention to the ends of words" to account for evidence that grammatical realizations - in the form of suffixes or postpositions are acquired earlier than realizations - in the form of prefixes or postpositions. These, together with other evidence on prevalent use of over-regularization and on common use of intonation and word order to distinguish different meanings, have led many researchers to argue that children learn their languages "the same way all around the world" (Slobin, 1972). Although such generalizations may be valid, I would like to argue that the type of evidence offered is not sufficient to support strong claims for universality in language acquisition. Researchers typically neglect to specify how language acquisition strategies work. What is needed in order to evaluate the claims made

is an approach that looks at specific and ongoing strategies.

The present paper directly addresses the issue of whether language acquisition strategies are universal. The paradigm used is that of statement verification (Carpenter & Just, 1975; Clark & Chase, 1972; Trabassor and his colleagues, 1971). The languages used are English and Japanese. More specifically, the issue is whether the process of acquiring the statement verification system is identical across English and Japanese children. In other words, do English speaking children and Japanese speaking children verify statements in the same way?

There are four types of statements of interest here. They involve two dimensions with each dimension having two values. The two dimensions are truth value, either true or false, and polarity, either affirmative or negative. Thus, the four types are true affirmative statements, false affirmative statements, true negative statements, and false negative statements. An example of a true affirmative statement is "You are a child." An example of a false affirmative statement is "You are a baby." An example of a true negative statement is "You aren't a baby." Finally, an example of a false negative statement is "You aren't a child." Current statement verification models are capable of accounting for the different latencies in verifying these four types of statements. We will use these models to predict the order in acquisition of the four types of statements in young children.

According to our application, children learn to verify statements in the following manner (Table 1). First, on hearing a statement they represent the statement in terms of a polarity marker and a content string. In the case of the statement "You aren't a baby," the statement representation

would be NEG (I, BABY). Second, they call upon their own knowledge. In response to the example statement, they would develop the knowledge representation (I, CHILD). Here we assume that the knowledge representation is always affirmative. Third, they start comparing the two representations. They first compare the content strings in the two representations, and then compare the polarity markers. The number of mismatches in the comparison determines the relative order of acquisition. A mismatch at the polarity marker level is more difficult to process than a mismatch at the content string level. Thus, true affirmatives are acquired first since there is no mismatch either at the polarity marker level or the content string level. False affirmatives are then acquired, since there is one mismatch at the content string level. The type of statement that is most difficult to acquire is the true negative, since there are two mismatches both at the polarity marker level and the content string level. Thus, the predicted acquisition order is true affirmatives, false affirmatives, false negatives, and true negatives.

If language acquisition strategies are universal, children all over the world should acquire statement verification in this order. Any exception to this order questions the universality claim of language acquisition strategies in statement verification.

Method

Eighteen English speaking and 18 Japanese speaking children of ages 3 and 4 were asked to verify 14 true affirmative statements, 14 false affirmative statements, 14 true negative statements and 14 false negative statements. The instructions were "I say something, and you say right or wrong. Are you ready? Your name is Mary. Your name isn't Mary." These two statements served as practice items.

Errors were counted and error rates were calculated.

Results and Discussion

The results are shown in Table 1. For English speaking children, true affirmative statements are acquired earliest; false affirmative statements are next. False negative statements are easier to acquire than true negative statements. The order of acquisition seems to be as predicted. On the other hand, results for the Japanese speaking children are inconsistent with the prediction. For affirmative statements, true statements and false statements are earliest in acquisition, and equally difficult. While negative statements are generally more difficult to acquire than affirmative statements, false negative statements are more difficult than true negative statements. Thus, within negatives, the order of acquisition for Japanese speaking children is the opposite of the order of acquisition for English speaking children. These results strongly imply that language acquisition strategies are not always universal.

Now we need another model to account for the Japanese data. Our proposal is that Japanese children represent a statement within a single string. A polarity marker is attached to the second component, and the whole string with its polarity marker inside, is directly compared with knowledge. Our model explains why true negative statements are easier than false negative statements. The true negative statement "You aren't a baby," is represented as (I, NEG-BABY) or (I, NON-BABY), and is compared with knowledge (I, CHILD). NonBABY and CHILD match in this case. The false negative statement "You aren't a child," is represented as (I, NEG-CHILD) and is directly compared with knowledge (I, CHILD). NEG-CHILD and CHILD, of course, don't match. Therefore, the false negative statement is more difficult (to acquire) than the true negative statement.

Thus, while the current verification model is adequate for English speaking children another verification model for Japanese speaking children seems to be needed. The major difference between the two models lies in the processing of negations. The English verification model states that a negation is processed after the content strings are compared. Thus, the model characterizes the sequential processing of a negation. On the other hand, the proposed Japanese verification model states that a negation is simultaneously processed as the content strings are compared.

Where does this difference come from? What makes this difference? Although we have no definitive answers to these questions, I would like to present a few theories.

First, the English verification system and the Japanese verification system have asymmetric relationships to their respective yes-no question answering systems. In other words, the English verification and answering systems work similarly for affirmatives but not for negatives, whereas the Japanese verification and answering systems work in the same way for affirmatives and negatives. If answering yes-no questions is dominant in a child's life, then it is very liekly for the child to apply his/her strategy for answering yes-no questions to verification. Since English speaking children are accustomed to answering yes-no negative questions by ignoring a negative, they are more likely to process a negation after the content string comparison is made. On the other hand, Japanese speaking children do not develop such sequential processing of a negation.

The second argument as to why English speaking children process a negation sequentially and Japanese speaking children process a negation simultaneously is related to the basic word order of English and Japanese.

English uses the SVO order, whereas Japanese uses the SOV order. Consequently, in English a negative comes somewhere between the subject and object. In Japanese a negation comes at the end. If a word or morpheme at the end of a statement is paid more attention, as is suggested by Slobin's (1973) argument about grammatical realization, it is retained more easily. Japanese children who hear a negation at the end of a statement are more likely to process a negation in a simultaneous way. For the same reason, English speaking children process the content string first and then a negation. Thus, different structural characteristics of English and Japanese seem to affect the order of the acquisition of the verification system.

The issue of whether language acquisition strategies are universal is a complicated one. If we look at the overall results of verifying affirmative statements and negative statements without a truth value dimension in the present study, the universality claim is actually supported. That is, both language groups acquired verification of affirmative statements earlier than that of negative statements. However, if we take a truth value dimension into consideration, the universality claim is no longer supported. Thus, the issue of universality can best be examined by developing language processing models that specify how children acquire a certain linguistic system.

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Table 1

Statement and Knowledge Representations Specified by the English Statement Verification Model

	True Affirmatives	False Affirmatives	False Negatives	True Negatives
Statement	AFF (I, CHILD)	AFF (I, BABY)	NEG (I, CHILD)	NEG (I, BABY)
Knowledge	(I, CHILD)	(I, CHILD)	(I, CHILD)	(I, CHILD)

Statement and Knowledge Representations Specified by a Japanese Verification Model (an alternative model)

	True Affirmatives	False Affirmatives	False Negatives	True Negatives
Statement	(I, AFF-CHILD)	(I, AFF-BABY)	(I, NEG-CHILD)	(I, NEG-BABY)
Knowledge	(I, CHILD)	(I, CHILD)	(I, CHILD)	(I, CHILD)

Table 2

The Error Rates of the Four Types of Statements in English-Speaking Children and Japanese-Speaking Children

Groups	True Affirmatives	False Affirmatives	False Negatives	True Negatives
English	.06	.10	.31	.53
Japanese	.05	.06	.35	.12